The U.S. Department of Energy (DOE) Office of Industrial Technologies (OIT) Agriculture Biobased Products Program and other DOE and federal agencies relevant programs

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The world's energy use is large (~380 Quads) and growing. It will grow even faster as the developing nations needs and use increases. Fossil fuel is a finite resource. The US imports over half the oil we use. The use of fossil fuels is by far the most significant environmental issue we face in terms of global warming, and other environmental issues. The use of renewable biomass resources to replace fossil fuels for power, fuels and bioproducts is a tremendous opportunity if not an imperative to stem this tide. At the same time, the explosive growth of knowledge in the biological sciences is proving to be a crucial tool to help enable the economical and efficient use of biomass for biobased products, and bioenergy.

The U.S. government has been helping to fund research and development on biobased products, fuels and power for many years. More recently, the Department of Energy (DOE) Office of Industrial Technologies (OIT) has developed strong partnerships with industries in the area of biobased products. Through these partnerships and OIT's Industries of the Future program, industry has developed a Vision and Roadmap for Biobased Products. The momentum behind this programs and other programs across all of DOE, the U.S. Department of Agriculture and other federal agencies, has been steadily growing, culminating in the Agricultural Biomass R&D Act of 2000 passed in June of 2000. The Agricultural Act further stimulates federal support and ensures that all the federal agencies work together along with industry to catalyze the emerging biobased product and bioenergy industries

There are many exciting projects and programs that are being funded or cost shared DOE OIT and other federal agencies in the area of Biobased Products. The funding is available for fundamental research, R&D and initial demonstration. The funding is targeted for growers, industrial companies, academia, and other institutions.

DOE supported projects include: polylactide polymers produced from corn through glucose, the production of polyols such as propylene glycol through direct novel catalysis from glucose, engine oils derived from vegetable oils, 1-3 propanediol derived through a combination of glucose fermentation and catalysis, novel, cost effective separation of lignin, hemicellulose and cellulose from lignocellulosic feed stock, lower cost ethanol from lignocellulosic feedstocks, biorefinery concepts that produce power, ethanol and biobased products from biomass feedstock, improved biomass co-firing for power, and advanced IGCC systems for power and heat. These are just a few of the many projects being funded or partially funded through federal support.

Ten fundamental technology platforms have been delineated that form the foundation of technologies important to the emerging biobased products industry; fermentation, sugar as a feedstock for conversion to higher value products through thermochemical conversion, gasification, pyrolysis, oils/lipids, protein, lignin, plants as factories, photosynthetic organisms, and anaerobic digestion. Each of these platforms can produce a variety of valuable chemicals and materials. There has been a lot of work done. There is a great left to do to achieve the full potential of biobased products.

The future is very promising. There is excellent research being conducted that can reduce the cost of biomass and further reduce the cost of the processes.